# An International Journal COMPUTERS & electrical engineering

List of Contents and Author Index Volume 15, 1989



OXFORD • NEW YORK • BEIJING • FRANKFURT SÃO PAULO • SYDNEY • TOKYO • TORONTO

# **Computers & Electrical Engineering**

### An International Journal

# editor

Mo Jamshidi

CAD Laboratory for Systems/Robotics,

Department of Electrical and Computer Engineering,

University of New Mexico,

Albuquerque, NM 87131, U.S.A.

# founding editor

John B. Slaughter

Occidental College, 1600 Campus Road, Los Angeles, CA 90041, U.S.A.

# editorial advisory board

D. L. Alspach La Jolla, Calif., U.S.A.

F. P. Carlson Beaverton, Ore., U.S.A.

W. W. Chu Los Angeles, Calif., U.S.A.

P. Faurre Rocquencourt, France

A. E. Karbowiak New South Wales, Australia

W. J. Karplus Los Angeles, Calif., U.S.A.

N. A. Kheir Huntsville, Ala., U.S.A.

D. E. Kirk Monterey, Calif., U.S.A.

B. C. Kuo Urbana, III., U.S.A.

F. F. Kuo Honolulu, Hawaii, U.S.A.

J. S. Meditch Seattle, Wash., U.S.A.

J. L. Melsa South Bend, Ind., U.S.A.

G. Murray San Diego, Calif., U.S.A.

D. A. Pierre Bozeman, Mont., U.S.A.

J. B. Plant Kingston, Ontario, Canada

J. R. Rowland Lawrence, Kan., U.S.A.

A. P. Sage Fairfax, Va. U.S.A.

S. M. Shinners Jericho, N.Y., U.S.A.

M. Sloan Houghton, Mich., U.S.A.

H. W. Sorenson La Jolla, Calif., U.S.A.

A. R. Stubberud Irvine, Calif., U.S.A.

H. A. Titus Monterey, Calif., U.S.A.

J. Trimble Arlington, Va, U.S.A.

Publishing Office: Journals Production Unit, Pergamon Press plc, Hennock Road, Marsh Barton, Exeter, Devon, EX2 8NE, England (Tel. Exeter (0392) 51558; Telex 42749), Advertising and Subscription Offices: Enquiries from customers in North America should be sent to: Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A., and from the remainder of the world to: Pergamon Press plc, Headington Hill Hall, Oxford OX3 0BW, England.

Annual Subscription Rates for 1990: Annual institutional subscription rate (1990) DM 570.00; 2-year institutional rate (1990/91) DM 1083.00; personal subscription rate for those whose library subscribes at the regular rate (1990) DM 200.00. Prices are subject to amendment without notice.

Back Issues: Back issues of all previously published volumes, in both hard copy and on microform are available direct from Pergamon Press offices.

Published Quarterly · Copyright © 1989 · Pergamon Press plc

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a menuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organizations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

Photocopying information for users in the U.S.A.

The Item-Fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided the stated fee for copying beyond that permitted by Section 107 or 108 of the U.S. Copyright Law is paid. The appropriate remittance of \$3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970.

Permission for other use
The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for such copying. The Item-Fee Code for this publication is: 0045-7906/89 \$3.00+0.00

<sup>©™</sup>The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.

### LIST OF CONTENTS

### NUMBER 1

- i Softstrip® data strip containing the contents list of this issue of Computers & Electrical Engineering
- Saad Haj Bakry 1 A computer investigation of telephone traffic on final routes
- Constantine Katsinis 11 Models of a computer architecture for processing of large numbers of images
- Niraj K. Jha 19 Robust testing of CMOS logic circuits
- S. Bingulac and D. W. Luse 29 Computation of generalized eigenvectors
- Yoon-Hwa Choi 33 Exploitation of parallelism in VLSI array testing
  - I Software Survey Section

### NUMBER 2

- i Softstrip® data strip containing the contents list of this issue of Computers & Electrical Engineering
- 43 Publisher's Announcement
- P. D. Stigall, Xueyun Li and 45 A multiple single-board-computer parallel processing system for speed-up of FFT implementation
- Suman Purwar and A. K. Susskind 59 Computation of Walsh spectrum from binary decision diagram and binary decision diagram from Walsh spectrum
- Jyh-Horng Chou and 67 A simple and flexible method for model simplification Ing-Rong Horng
- Roger L. Haggard and 75 A survey of parallel computer architectures for the Solution of the Navier-Stokes equations
  - I Software Survey Section

### NUMBER 3/4

- i Softstrip® data strip containing the contents of this issue of Computers & Electrical Engineering
- Rajesh Raina and 89 A generalized fault simulator for combinational logic T. N. Rajashekhara 89 Circuits

Djamel Slimani and Altan M. Ferendeci	97	Numerical solution of Laplace equation in three dimensions for a Pierce type electron gun	
Moon S. Jun and Shietung Peng	107	The design and time analysis of a systolic array with asynchronous protocols for matrix multiplication	
M. S. Obaidat	121	Performance evaluation of the IMPS multiprocessor system	
Avi Rushinek and Sara R. Rushinek	131	Accelerator boards, memory, power, coprocessor, and price in an automated audit trail and networked matching	

price in an automated audit trail and networked matching algorithm of needs

I Software Survey Section

# **AUTHOR INDEX**

Alford C. O., 75	Jha N. K., 19	Raina R., 89
	Jun M. S., 107	Rajashekhara T. N., 89
Bakry S. H., 1	Jyh-Horng Chou, 67	Rushinek A., 131
Bingulac S., 29		Rushinek S. R., 131
	Katsinis C., 11	
Dawson D. F., 45		Slimani D., 97
	Luse D. W., 29	Stigall P. D., 45
Ferendeci A. M., 97		Susskind A. K., 59
	Obaidat M. S., 121	
Haggard R. L., 75		Xueyun Li, 45
The same of the sa	Peng S., 107	
Ing-Rong Horng, 67	Purwar S., 59	Yoon-Hwa Choi, 33

